# Appendix 3-1
# Organizational Structure

Many employee comments focused on organizational concerns. Employees suggested that NOAA's current organizational structure could diminish efficiency and effectiveness, especially by causing problems of overlapping and incompatible missions and duplication of effort. A synthesis of the employees' comments yielded two fundamental issues:

1. Should NOAA be organized by mission (e.g.., weather, fisheries), or by function (research, prediction, regulation)?
2. Should NOAA strive to be a more centralized organization in which line offices are subdivisions of a centrally-managed whole, or should NOAA maintain its current "holding company" structure in which the line offices retain a high degree of autonomy?

Employees submitted many new organizational designs along both mission and function lines. They also submitted numerous proposals for creating new line offices, merging existing line offices, and for consolidating, separating, and redistributing programs and responsibilities among line offices. These also broke down along mission and function lines. Several employees favored a stronger corporate NOAA, while a few suggested greater line office autonomy.

The PRT members reviewed the employee proposals and submitted their own ideas. The PRT considered the benefits and drawbacks of mission-based and function-based organization:

- Mission-based organization helps to focus organizations on mission delivery and customer service, but it often results in duplication of effort.
- Function-based organization, conversely, can create efficiencies by grouping together employees that do similar work, but units that provide intermediate products and services may tend to lose focus on the overall mission. Function-based organization typically requires greater centralized control than mission-based organization.

The PRT also discussed the benefits and drawbacks of unitary and "holding company" structures:

- A unitary structure improves coordination among its constituent parts, but there may be increased rigidity and bureaucracy, and less connection to the customers.
- A "holding company" structure increases flexibility and customer orientation, but often at the cost of significant duplication of effort. Also, autonomous components often compete and pursue missions unrelated to or in conflict with the mission of the larger organization.

The PRT concluded that NOAA needs improved management and integration across the line offices. Significant improvements can be gained through new corporate management policies and processes (see Chapter 2). The Team recommended some near term minor organizational realignments and a vision for a future NOAA in the year 2007 and beyond.

# Appendix 3-2
# Consolidation of Operational Observing Responsibilities

## Background:

NOAA's environmental monitoring and prediction mission, and its stewardship mission both depend on high quality, reliable observations of the environment and living marine resources. Based on the NOAA FY04 base budget review it is estimated that NOAA spends approximately $1.7 billion annually developing, acquiring, operating, and maintaining operational observing systems. The types of observations are as varied as the activities they support. For example, Doppler radars provide updated wind information on local scales to support severe storm forecasts, and new acoustic surveying methods provide observations to support stock assessments needed for regulatory activities. NOAA's observing needs range from the local scale to global, and in the case of space weather, include the sun. Observing systems sometimes support multiple activities, e.g., atmospheric observations that support real-time weather forecasting as well as retrospective climate work; ocean and coastal observations that support fisheries and maritime interests, hazard monitoring and disaster management. NOAA often seeks partnerships to meet these vast observing requirements. This paper addresses operational observing systems and is not intended to address exploratory development of observing capabilities that is sometimes carried out by NOAA laboratories.

## Problem Statement:

With the exception of satellite systems, in general NOAA's observation systems have been developed and deployed by individual Line Offices to meet specific program needs. Consequently, these observing systems have met a narrowly focused set of requirements. Further, NOAA does not have an observation architecture to use in assessing proposed new requirements and proposed observing systems.

This decentralization of observing responsibility and lack of an architecture has made it difficult to ensure that observing systems are:

(1) designed to provide the maximum value to NOAA,
(2) not duplicative of existing systems, and
(3) operated efficiently and in a cost-effective manner.

For example, NOAA could have included climate considerations in the system design and implementation of the Automated Surface Observing System (ASOS). Today, Pacific Marine Environmental Laboratory (PMEL) and the National Data Buoy Center (NDBC) both play critical roles in NOAA's data buoy program, however, they are both supporting operations. Ideally, PMEL should be focused on research and development with a clear transition plan to operations by NDBC. The proposed transition of the tsunami buoys from PMEL to NDBC is a good start in that direction. For OAR, completion of this transition and implementation of the recommendation below will focus resources on critical research to support NOAA's mission instead of being diverted to support observing systems that have become operational.

The need for more data which provide higher spatial and temporal resolution is growing exponentially. NOAA currently operates too many observational platforms that are not integrated and are growing too costly to operate and maintain. Additionally, NOAA often finds itself with an observation system but not the means to utilize the data nor to provide long term archive and access for the data.

**Options:** The following options were examined for benefits and drawbacks:

1. Status Quo, i.e., each LO continues to develop, deploy, operate and maintain its own observational platforms.
2. Centrally plan and acquire all observing systems. Acquisition method and responsibility for operations and maintenance of systems will be determined on a case by case basis.
3. Centralize the planning, acquisition, operations and maintenance of observing systems into a single LO.

## Option 1: Status Quo

| Pros | Cons |
|---|---|
| 1. Least disruptive to implement | 1. Missed opportunities to achieve economies of scale for procurement/operations. |
| 2. Maintains single point of accountability for observing and service delivery | 2. Little opportunity to ensure that the best technology is being used to acquire the data needed. |
| | 3. Within LO budgets, increased competition for resources between programs and O&M of systems. |
| | 4. At NOAA corporate level, O&M of individual systems may not be a priority and may not be funded in annual budget initiative process. |
| | 5. Missed opportunities to leverage observing systems for other mission needs. |

Option 2: Centrally plan and acquire all observing systems. Acquisition method and responsibility for operations and maintenance of systems will be determined on a case by case basis.

| Pros | Cons |
|---|---|
| 1. Provides a single point for observation planning—clear POC for internal and external use. | 1. Handoff from program planning to acquisition/O&M phase may be difficult |
| 2. Ensures opportunities to leverage observing systems for other mission needs. | 2. Central planning group required to address wide variety of requirements |
| 3. Ensures appropriate planning for transition from R&D to operations offices within NOAA. | 3. Individual LO or program data needs may not be at the top of priority list. |
| 4. Provides opportunity to list all observational requirements in central location with higher probability that data needs will be fulfilled. | |
| 5. Observational requirements to support science and management will receive Corporate NOAA attention. | |

### Option 3. Centralize the planning, acquisition, operations and maintenance of observing systems into a single LO.

| Pros | Cons |
|---|---|
| 1. Creates single point of responsibility for all observing system | 1. Creates a very large LO. |
| 2. Ensures economies of scale for procurement and O&M. | 2. Most disruptive to implement |
| 3. Ensures Corporate priority is placed on all aspects of acquiring and O&M of observing systems. | 3. Potentially challenging to maintain responsiveness of the "Observation LO" to the user needs (NOAA LO's/program). |
| 4. Provides "one stop shopping" for meeting observational requirements within NOAA and the US Government. | 4. LO's lose the ability to determine priorities for programs internally and will have to compete with external customers. |
| 5. Ensures opportunities to leverage observing systems for other mission needs. | |
| 6. Opportunity to infuse compatible technologies on various platforms, leading to an integrated and interoperable observing strategy for terrestrial, oceans, atmosphere. | |

# Appendix 3-3
# Buoy Discussion and Background

## Introduction

Many of NOAA's products and services depend on observations of the marine environment; including surface weather data for marine forecasts, ocean currents, temperature and salinity data for climate, biological sampling for marine ecosystem analysis and geophysical measurements to detect earthquakes and tsunamis. Observing platforms range from small, autonomous profiling floats, drifting buoys, fixed moorings, coastal structures, ships and aircraft.

The need for marine observations and the growing requirements for products, services and research across NOAA requires the agency to consider efficiencies of scale and cost in the operation and maintenance of its marine facilities.

The National Data Buoy Office (NDBO) and later the National Data Buoy Center (NDBC) has existed since the inception of NOAA, first within NOS and later within NWS, where its function has been to support NWS requirements for surface weather data and other NOAA service needs. The original organization was formed, in response to the Commission on Marine Science, Engineering and Resources, specifically to consolidate the marine buoy programs of a variety of marine related agencies. Today marine observing systems are proliferating throughout NOAA in response to the demand for more ocean data. It is appropriate, therefore, for NDBC to manage all of NOAA's operational buoys, floats and similar autonomous platforms, and for NDBC to work closely with NOAA's research community to enable the timely transition of research platforms into operations.

## National Data Buoy Center

The NDBC's mission is to *"provide comprehensive, reliable systems and marine observations to support the missions of the National Weather Service and NOAA, promote public safety, and satisfy the future needs of our customers."* (For detailed information on the NDBC, see *http://seaboard.ndbc.noaa.gov/about_ndbc.shtml.*) Currently, the NDBC operates 69 moored buoy stations. NDBC also operates 57 C-MAN (Coastal-Marine Automated Network) stations. The buoys and stations measure wind speed and direction, barometric pressure, air temperature and sea surface temperature. They also have the demonstrated capability to measure ocean currents, subsurface temperatures and salinity throughout the water column. In addition, all buoys and some C-MAN stations measure sea surface temperature and wave height and periods. These buoys and stations are deployed in U.S. waters, including Alaska, Hawaii, and the Great Lakes, as well as the open ocean, and data is transmitted hourly to NWS forecasters and other users. NDBC also manages the collection of data from 900 Voluntary Observing Ship platforms, 2 drifting buoys, and 4 floats.

NDBC has a total annual budget of about \$16.2 million (~\$13.7m NWS and ~\$2.5m reimbursable funds). NDBC employs engineers, meteorologists, oceanographers, computer scientists, and other professionals. The U.S. Coast Guard maintains liaison personnel at the NDBC, who amongst other duties, provide the Coast Guard interface to service the buoy network. An NDBC Technical Services Contractor supports NDBC with a staff of approximately 110 employees.

## Office of Oceanic and Atmospheric Research Buoy Arrays

OAR's Pacific Marine and Environmental Laboratory (PMEL) and Atlantic Oceanographic and Meteorological Laboratory design, deploy, and operate a number of marine data buoy systems. PMEL's tropical climate systems buoys consist of the TAO and PIRATA arrays. The TAO array's 59 buoys monitor the El Niño oscillation, and the PIRATA array's 10 buoys provide for seasonal to interannual climate monitoring in the Atlantic Ocean. The TAO and PIRATA buoys measure surface winds, air temperature, relative humidity, sea surface temperature, sub-surface temperatures, and other parameters at selected sites, such as upper ocean currents, subsurface salinities, long- and short-wave radiation, rainfall, and barometric pressure. Hourly data is delivered in near real-time via Argo satellites and the Internet to NOAA and other users.

PMEL also operates the FOCI array, which is a system of 59 buoys that measure variability of biophysical parameters in the North Pacific and Bering Seas, for joint research programs between NMFS, NOS and OAR. Local management is through NOAA's PMEL and the NMFS Alaska Fisheries Science Center. Measurements include currents, sub-surface temperatures, salinities, nutrients, fluorescence, surface winds, air temperatures, and sea surface temperatures. Some moorings relay limited data in near real-time via Argo satellites, but most record data internally for later downloading during mooring maintenance operations.

PMEL's DART array of 6 buoys is for real-time tsunami detection. Three are located in the North Pacific, south of the Aleutian Islands. Two are off the Oregon and Washington coasts, and one is in the equatorial East Pacific. The tsunami detector is a seafloor-mounted pressure gauge including filtering software to detect tsunami waves. Data is relayed acoustically to a surface buoy which transmits the data in real-time via GOES satellite to NWS Tsunami Warning Centers and to PMEL. Currently the DART system is being transitioned from research to operations with the transfer of the system to the NDBC. The DART surface buoys are configured to add surface meteorological instruments, but that capability is not currently used.

PMEL's VENT system consists of arrays of acoustic recording hydrophones that locate and quantify submarine earthquakes and volcanoes, large marine mammals, and man-made ambient noise. The array consists of 24 moorings- 4 constellations of 6 moorings each- with two constellations in the Atlantic Ocean, one in the Eastern Tropical Pacific, and one in the Gulf of Alaska. Moorings are serviced and/or replaced annually. PMEL manages the program, with funding provided by NOAA, the National Science Foundation, and the Office of Naval Research. Data from these systems are not transmitted via satellite, but are retrieved during annual recovery and service operations.

PMEL's NeMONET system consists of one surface mooring and three seafloor sensor instrument packages designed to detect near real-time changes at Axial volcano, an active submarine volcano off the Oregon Coast. Data from the seafloor sensors is relayed acoustically to the surface buoy, which transmits the data in real-time to scientists via low-earth orbiting cellular phone links (ORBCOMM and Iridium).

AOML operates a small, low-cost coastal array of nine surface and subsurface moorings in coastal waters around South Florida. These moorings contribute data for studying regional ecosystem health, including salinity, temperature, and current velocities. This project is managed and funded jointly between AOML and the University of Miami's Rosenstiel School of Marine and Atmospheric Sciences. NOAA contributes about 30% of one FTE to maintenance and management of this buoy array. Each mooring costs from $5k to $60k to construct, depending on the instruments deployed, and about $1k in annual maintenance costs.

AOML provides the US data management for the Argo program, which on completion is a global array of 3000 profiling floats designed to observe the ocean's upper layer in real time. Along with satellites, the Argo array is initiating the oceanic equivalent of today's operational observing system for the global atmosphere.

| Array | Manager | Total Buoys | Unit Cost | O&M Cost | FTEs |
|---|---|---|---|---|---|
| Nomad/Discus | NDBC | 69 | $356k/$260k | $80k/$70k[1] | 176 total NDBC[2] |
| C-MAN | NDBC | 57 | $215k | $46k[1] | see above |
| TAO | PMEL | 59 | $114.5k | $137.9k | 18 |
| PIRATA | PMEL | 10 | $124.9k | $60.9k[3] | 3 |
| DART | PMEL | 5 | $113.5k | $250.7k | 5 |
| FOCI | PMEL/NMFS | 59 | $81k | $63.8k | 9 |
| VENT | PMEL | 24 | $40k | $24k | 5 |
| NeMONET | PMEL | 1 | not available | not available | 3 |
| Florida Coastal | AOML | 9 | $18k | $2k | 1 |
| Argo | OAR | 169[4] | $15k | $9k | 20[5] |

1 Does not include shiptime costs provided by USCG.
2 This is total FTEs for entire NDBC program, including contract employees.
3 Does not include shiptime costs provided by Brazil and France.
4 NOAA now has funds to deploy one-third of the global array; the FY03 request includes funds for one-half of the array. The total array is 3000 floats.
5 This is the total NOAA-funded FTEs, including contract employees.

# Appendix 3-4
# Science at NOAA

## The Role of Science at NOAA

Science underpins all of NOAA's products and services. Science informs management decisions and provides the tools to forecast changes in the environment. Science at NOAA ranges from fundamental or basic research, applied research, advanced technology development, engineering development, and operational systems development to the application of science to products and services.

NOAA requires scientific research to sustain and improve products and services, to anticipate changing social and economic needs that may require new products and services, and to develop the knowledge and tools to support changes in services.

NOAA, as a mission agency, has a relatively small investment in scientific research compared with the major science agencies, such as NSF, ONR and NASA. NOAA is critically dependent on the broad scientific strengths of those agencies. NOAA's research laboratories and centers must use this external science and conduct internal research and development (IR&D). The IR&D includes focused exploratory research, applied and advanced systems development, engineering and operational systems development and the operational transition of research and development to meet mission requirements.

## NOAA and the External Science Community

NOAA must promulgate its vision of its scientific needs, which are required to fulfill its mission to the national and international community, to influence and to take advantage of external research and development. There are several mechanisms:

- Joint sponsorship of research with other organizations through mechanisms such as the National Ocean Partnership Program (NOPP) and the US Weather Research Program (USWRP)
- National Ocean Commission
- National Association of State Universities and Land Grant Colleges (NASULGC)
- Support for university-based research programs
- NOAA's Science Advisory Board
- Cooperative programs with other agencies, such as the Joint Center for Satellite Data Assimilation (JCSDA)
- Targeted investment in joint development programs, such as the Weather Research and Forecast (WRF) Model Development Program
- The establishment of programs that encourage externally supported researchers to use NOAA facilities and to share expertise with NOAA scientists

## NOAA and Internal Scientific Research

Currently, research is infused throughout the organization. The National Weather Service (NWS) funds and conducts research that is directly applicable to immediate service improvements. It also supports longer-term applied research in fields, such as, hydrology. The National Marine Fisheries Service (NMFS) provides end-to-end research to support their regulatory and management roles. The National Ocean Service (NOS) supports coastal, habitat and navigation research, and finally the National Environmental Satellite and Data Information Service (NESDIS) performs satellite product development. In each case, these service lines recognize the need to support research activities to meet their operational requirements. In addition, NWS and NOS obtain research from OAR, which specializes in ocean, climate, weather and air quality research.

NOAA focused research is conducted within NOAA owned and operated laboratories, in universities, and in the private sector in response to the needs of individual line offices. Various funding mechanisms are employed, including base funding of laboratories, grants, contracts and cooperative agreements. There is little NOAA corporate oversight of research. The base review process that started in FY2002 may be an initial step in this direction.

Line Offices and individual programs determine the balance between internal and external research. Of the moneys appropriated to NOAA that are not earmarked or pass—through, approximately 20 percent is directed by NOAA to the external community. Given the unevenness of the review process, it is difficult to quantify the quality or performance of research across the entire agency. NOAA does not always take full advantage of the expertise available within academia or private sector. Various mechanisms exist to fund external research—grants, contracts and cooperative agreements; however, these mechanisms are not applied uniformly, and with the same intent, across the agency. In some NOAA programs peer review is excellent and consistent with the best practices in the government, but it is almost non-existent in others.

## Distribution of Research

One of the major challenges in any scientific organization is the ability of the organization to conduct meaningful research and for that research to affect operations. The most effective way to ensure that the service requirements for research are met is to co-locate research and operations. However, this approach often emphasizes short-term goals at the expense of investment in research to meet longer-term needs. A challenge for NOAA is to manage the scientific needs of the product and service lines without necessarily owning and operating the research enterprise within that line. Also, when research is conducted within a service line, where resource management is an issue, it is necessary to avoid a perception of bias.

## Lifecycle Planning, Investment and Management of Science

It is necessary to develop lifecycle (end-to-end) processes for planning, investment and management of scientific research to science operations, products and services. This process is not applied uniformly across NOAA. This process would ensure greater oversight of programs, increase cost-effectiveness and ensure optimum solutions to NOAA's mission needs.

## Organization Structure

There are four organizational options for research in NOAA.

### OPTION A

The current system, which consists of dedicated research in OAR, end-to-end research in NMFS, and a mixture of in-house and cross-LO research in NWS, NOS, and NESDIS

### OPTION B

The transfer of all research to a single line office

### OPTION C

The transfer of all research to the appropriate service lines

### OPTION D

Same as OPTION A with corporate (NOAA headquarters) oversight of all research activities

Each of these options has its advantages and disadvantages. They are provided in the following charts.

## OPTION A: Status Quo

| PROS | CONS |
|---|---|
| • Existing structure reflects the diversity of cultures and procedures within the current organization | • Major themes are not organized at the NOAA corporate level and may not be focused on the NOAA strategic requirements. |
| • Where desirable, research can be directed within a service line. | • There is an issue of the credibility of the science within organizations that regulate and perform the science that supports the regulatory role |
| • Vertical integration of research with services can be the most cost-effective | • Can create opportunities for duplication of effort where there is little cross-LO communication |
| • Line offices can establish cross-line office agreements at a working level | • Service lines that depend on other line organizations for research may lack control over the R&D |
| • There are opportunities for exploratory research independent of current product and service constraints | • NOAA's Research organization appears confusing to outside constituents |
| | • There is inconsistency in the application of research investment criteria across NOAA (quality, relevance, performance). Each organization manages its research portfolio independently and with arbitrary oversight. |
| | • Research may, of necessity, be second priority to operations thus inhibiting NOAA from making advances |

## OPTION B: A Single Research Organization

| PROS | CONS |
|---|---|
| • Separation of research and services ensures more autonomy for research | • Cost of implementation is unknown and may be high |
| • Avoids the issue of the credibility of science within organizations that regulate and perform the science that supports regulatory decisions | • Service lines that depend on other line organizations for research may lack control over the R&D |
| • May realize significant cost savings through consolidation of research facilities | • There is a tendency to duplicate effort if needs of service sector are not met |
| • May reduce management staff through consolidation of functions | • GPRA and performance measures for research may not be fully aligned to service GPRA requirements |
| • Can avoid duplication of research effort | • Need well-defined research requirements and mechanisms for ensuring requirements are met including control of funds |
| • There are opportunities for exploratory research independent of current product and service constraints | • Need explicit cross-LO agreements to ensure that service line requirements are met |
| • Creates a rational, easy to understand organization from the outside of NOAA perspective, which can provide a single grants & contracts process | |
| • Easy to establish consistent research investment criteria across NOAA | |

## OPTION C: Distributed Research

| PROS | CONS |
|---|---|
| • End-to-end research provides a path to operations for research enterprise | • Issue of the credibility of science within organizations that regulate and perform the science that supports the regulatory decision |
| • Ensures accountability with service lines exercising control over the R&D agenda | • Can create opportunities for duplication of effort where there is little cross-LO communication with cost implications for overall NOAA line management |
| • Vertical integration of research with services could be the most cost-effective approach for a particular line organization | • Little opportunity for exploratory research |
| | • There may be inconsistency in the application of research investment criteria across NOAA |
| | • Service directors will always favor maintenance of operations over research reducing research budget in a fiscally constrained environment |

## OPTION D: Option A with Corporate oversight

| PROS | CONS |
|---|---|
| • Explicit corporate oversight of the NOAA R&D agenda | • Significant increase in bureaucracy to manage science in a complex matrix |
| • Single R&D investment criteria applied to all corporate research | • Implementation costs may be high |
| • Existing structure reflects the diversity of cultures and procedures within the current organization | • Research lines will lose significant budget control to corporate body |
| • Where desirable research can be directed within a service line | • There is an issue of the credibility of the science within organizations that regulate and perform the science that supports the regulatory role |
| • Vertical integration of research with services can be the most cost-effective | |
| • Can create the necessary independence of regulation and research without dismantling the existing infrastructure through a corporate, external review process | |
| • Can avoid duplication of effort through appropriate oversight | |
| • Line offices can establish cross-line office agreements at a working level and/or at corporate level | |
| • Opportunities for exploratory research independent of current product and service constraints with corporate oversight | |
| • Opportunity to develop and sustain strategic research, science and technology programs | |
| • Improves ability to strategically identify relationships with other agencies at the highest level | |
| • Can ensure accountability to mission requirements through corporate oversight | |
| • Transparent investment strategy for internal and external funding | |

## Attachment 1, Appendix 3-4

**Estimated Federal Funds for Research & Development**
**Obligation for Research & Development**
**Fiscal Year 2003**
**($ In Thousands)**

| | Internal Research | External Research | Total |
|---|---|---|---|
| National Ocean Service | $29,922 | $25,192 | $55,114 |
| National Marine Fisheries Service | 106,218 | 15,527 | 121,745 |
| Oceanic and Atmospheric Research | 249,072 | 34,957 | 284,029 |
| National Weather Service | 21,753 | 6,001 | 27,754 |
| National Environmental, Satellite and Data Information | 6,103 | 5,352 | 11,455 |
| Program Support/OMAO | 74,698 | 0 | 74,698 |
| Total, NOAA | $487,766 | $87,029 | $574,795 |

**Source:** U.S. Department of Commerce, National Oceanic and Atmospheric Administration. *FY 2003 Budget Summary.* February 4, 2002.

* Internal Research is composed of NOAA Laboratories, Joint Institutes, Days-At-Sea and Aircraft Operations.
** External Research is composed of grants and contracts.

# Appendix 3-5
# How Do We Get The Best Science To NOAA?

As a mission agency, NOAA is dependent on good science. NOAA's research budget is relatively small compared to other major science agencies, such as the National Science Foundation, the Office of Naval Research and NASA. Therefore, NOAA must utilize this external science, as well as conduct internal R&D. In recognizing this, the PRT recommended (see Recommendation 35) that NOAA follow certain guidelines in order to ensure that the right science is being conducted and to make the best science investments.

## Basic Recognitions:

- Recognize the broad scientific strengths of agencies like NSF, ONR, and NASA
- Recognize that NOAA, as a mission agency, is critically dependent on those scientific strengths
- Recognize that NOAA must have an in-house scientific capability, so that it can be a good 'buyer' of science and a good 'translator' of that science to apply to societal needs (just as NASA and Navy have in-house labs)

## Actions Needed:

(1) Develop that vision
- Offer this vision in the spirit of making government more efficient
- Identify research areas NOAA requires to fulfill its mission of meeting specific societal needs

(2) Promulgate that vision to a variety of forums
- National Ocean Commission
- Admiral's recently established Science Agency Roundtable
- The newly emerging interagency climate structure
- National Oceanographic Partnership Program (NOPP)
- U.S. Weather Research Program
- National Association of State Universities and Land Grant Colleges Partnership Meeting
- NOAA's Science Advisory Board

(3) Provide financial incentives
- Link NOAA budget initiatives to those of the science agencies
- Seek resources to provide incentive funding, for example, to participate in joint solicitations such as NOPP Broad Agency Announcements

(4) Provide personnel incentives
- Expand use of SES-equivalent positions for in-house scientists, IPAs to bring in outsiders, and exchanges with other agencies

# Appendix 3-6
# Overview of the Office of the Chief Scientist

In recommending that NOAA establish a corporate level Research Committee (see Recommendation 36), the PRT recognized that many of the roles and responsibilities of the NOAA Chief Scientist would be subsumed by the responsibilities and activities of the Research Committee, especially that of scientific advisor to the Administrator. Other responsibilities could be appropriately distributed to other parts of NOAA. This appendix describes the roles, responsibilities, and assigned activities of the NOAA Chief Scientist and more generally, the Office of the Chief Scientist.

## Authorities

REORGANIZATION PLAN NO. 4 of 1970; NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, SECTION 2(d)

There shall be in the Administration a Chief Scientist of the National Oceanic and Atmospheric Administration who shall be appointed by the President, by and with the advice and consent of the Senate, and shall be compensated at the rate now or hereafter provided for Level V of the Executive Pay Rates (5 U.S.C. 5316). The Chief Scientist shall be the principal scientific adviser to the Administrator, and shall perform such other duties as the Administrator may direct. The Chief Scientist shall be an individual who is by reason of scientific education and experience, knowledgeable in the principles of oceanic, atmospheric, or other scientific disciplines important to the work of the Administration.

DEPARTMENT ORGANIZATION ORDER 25-5 (September 30, 1994): NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, SECTION 3.04

The Chief Scientist of NOAA is the principal scientific advisor to the Under Secretary/Administrator and performs such duties as the Under Secretary/Administrator shall direct. The Chief Scientist shall:

a.6Be NOAA's principal spokesperson on scientific and technological issues, formulate and recommend scientific policy to the Under Secretary/Administrator, and provide guidance to NOAA Line and Program Offices on scientific and technological issues;

b. Be NOAA's primary point of contact with the National Science Foundation; the National Academy of Sciences; the National Academy of Engineering; and other national and inter7 national science and technology organizations;

c.6superintend a continual process of independent peer evaluation to determine the quality and relevance of NOAA's science and technology programs, products, services, and profes7 sional staff, and to recommend were and how improvements should be made;

d.6ensure that all NOAA services are based on sound science, that NOAA research programs are designed to improve existing NOAA services or establish the basis for needed new services; and that NOAA's research laboratories are meeting the agency's mission goals; and

e.6foster sound research strategies and scientific program development within NOAA to meet long-range societal needs and emerging scientific and technological opportunities.

DEPARTMENT ORGANIZATION ORDER 10-15 (January 26, 1996): UNDER SECRETARY FOR OCEANS AND ATMOSPHERE AND ADMINISTRATOR OF THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, SECTION 2. 02d.

The Chief Scientist of NOAA, who is appointed by the President by and with the advice and consent of the Senate, shall serve as the principal scientific advisory to the Under Secretary/Administrator, and shall perform other duties as the Under Secretary/Administrator may assign or delegate. The Chief Scientist shall perform the functions of the Under Secretary/Administrator during the absence or disability of the Under Secretary, Assistant Secretary, and Deputy Under Secretary, or in the event of vacancies in those positions.

**Duties as assigned or delegated by the Under Secretary/Administrator**

Responsible within NOAA for:
- National Association of State Universities and Land Grant Colleges
- National Ocean Sciences Bowl

Oversight of:
- Presidential Early Career Awards for Science and Engineering
- Marine Protected Areas
- Ocean Exploration
- Coral Reef Task Force
- PECASE
- Nancy Foster Scholarship

Represent DOC:
- National Invasive Species Council
- National Science and Technology Council
- Aquatic Nuisance Species Task Force

Member of:
- NOAA Education Committee
- ORAP
- NOPP
- U.S. Delegate to Intergovernmental Oceanographic Commission

Other Major Activities by Members of the Office of the Chief Scientist:
- operational oceanography
- ocean observing systems (Argo, GOOS)
- satellite scatterometry (NASA QuikSCAT, Japanese ADEOS-II)
- part-time support of Ocean.US